US Army Corps of Engineers

Construction Bulletin

No. 95-3 Issuing Office: CEMP-CE Issue Date: 2/7/95 Exp. Date: 31 DEC 97

CEMP-C

Subject: Structural Steel Connections for Military Construction

Applicability: Information

OBSERVATION: The adequacy of structural steel connections is of primary concern to the Corps of Engineers. In the past, there has been some misunderstanding about who the "Engineer of Record" (EOR) is for designs of structural steel connections and the role of the designer during the construction phase of a project.

DEFINITIONS:

a. Critical Connections. Critical connections are those connections subjected to moment, axial and shear loads or combinations thereof. These connections will be considered not standard. (All critical connections are to be detailed on the contract drawings.)

b. Simple Connections. Simple connections are connections classified as shear connections and subjected to shear loads only. Design and detailing of these connections should follow the American Institute of Steel Construction (AISC) Manual of Steel Construction.

c. Engineer of Record. For in-house designs, the EOR is the Chief of Engineering of the office performing the design. For A-E designs the EOR is the principal of the firm in charge of the project.

DISCUSSION: ER 1110-345-53, Structural Steel Connections, dated 22 July 1994, prescribes the policy and procedures for the design and approval of structural steel connections for military construction projects. It states that the design responsibility for in-house or Architect-Engineer (A-E) design of all structural steel connections will remain with the Corps designer or the A-E firm respectively. Transfer of this responsibility to the construction contractor is not permitted. Division and district offices preparing contract documents or having jurisdiction over A-E prepared designs will ensure that all critical structural steel connections are completely detailed and shown on the

Prepared in accordance with AR 25-30 by HQUSACE Directorate of Military Programs, 20 Mass. Ave NW. Washington D.C. 20314-1000

contract drawings. Construction contractors will not be permitted to design critical steel connections, but will be permitted to select and detail simple connections (shear connections) from the AISC Manual of Steel Construction. Note however that the responsibility for the adequacy of these simple connections will be retained by the Corps of Engineers designer or the A-E firm respectively, through the shop drawing review and approval process.

The designers input should not end with the completion of design. Divisions and districts are to ensure the role of the designer is extended into the construction phase of the project by planned visits at critical points of construction. Erection of structural steel is considered a critical point of construction.

CONCLUSIONS: Based on the requirements contained in ER 1110-345-53 there are a few things to look out for when doing your Biddability, Constructability, Operability and Environmental review on a project that contains structural steel. The first is to be sure that the project specifications and notes on the drawings do not transfer design responsibility from the Government to the construction contractor, e.g., make sure that necessary submittals requiring government approval have been specified. CEGS 05120, Structural Steel, requires submittal of all structural connection shop drawings for government approval. Another thing worth checking is if designer site visits have been planned, for the critical phases of construction, as required by ER 1110-345-53. If not, this fact should be highlighted in your BCOE comments. If site visits are required the resident engineer is responsible for informing the designer when the contractor has reached those stages of construction. It is noted that site visits by the designer, required by the design contract, are funded out of the EDC account.

This Construction Bulletin has been coordinated with HQUSACE's Engineering Division (CEMP-E).

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